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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,048	10/04/2005	Cornelis Hermanus Van Berkel	NL 030348	6163
65913	7550	03/19/2009		
NXP, B.V. NXP INTELLECTUAL PROPERTY DEPARTMENT M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131			EXAMINER YAARY, MICHAEL D	
			ART UNIT 2193	PAPER NUMBER
			NOTIFICATION DATE 03/19/2009	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

### Office Action Summary

**Application No.**

10/552,048

**Applicant(s)**

VAN BERKEL ET AL.

**Examiner**

MICHAEL YAARY

**Art Unit**

2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2 and 4-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, and 4-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 1, 2, and 4-8 are pending in the application.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gu (US Pat. 6,173,009) in view of Hamatsu et al. (hereafter Hamatsu)(US Pat. 4,847,861).

Gu was cited in the previous office action dated 09/05/2008.

4. **As to claims 1 and 4**, Gu discloses a method for accomplishing state transitions in configurable linear feedback shift register (LFSR) controlled by a clock (abstract and column 5, lines 4-5); the length of the LFSR being represented by N, wherein a state vector represents the state of the LFSR (column 2, lines 11-22 and column 4, lines 61-67); an output of the LFSR comprising W output symbols, W being at least two, and the output symbols being generated during one clock cycle (column 3, lines 6-11 and

column 8, lines 19-22), a state transition of the LFSR being accomplished during one clock cycle via multiplication of the state vector by a state transition matrix to the power of W, (column 3, lines 6-54 and column 4, line 55-column 5, line 36).

5. Gu does not disclose the multiple state transition matrix is characterized in that said multiple state transition matrix is decomposed in a first matrix and a second matrix, the first matrix comprising at most  $N+W+1$  different expressions and the second matrix comprising at most  $N+W+1$  different expressions, wherein the elements of the second matrix are defined by:  $G_{ij} = \{1, \text{ if } i-j=W; g_{i+j-N+1}, \text{ if } (i+j) \geq N-1 \wedge (j \geq N-W); 0, \text{ otherwise,}$  and the elements of the first matrix are defined  $P_{ij} = \{1, \text{ if } i=j \wedge i < N-W; p_{i+j-2N+W+1}, \text{ if } i+j \geq 2N-W-1; 0, \text{ otherwise,}$  wherein  $p_0 = 1, p_i = \sum g_{n-i+j} p_j$  for  $0 < i < N$ , and  $g_0, g_1$  up to and including  $g_{N-1}$  represent the configuration symbols which are comprised in the state transition matrix.

However, Hamatsu discloses the multiple state transition matrix is characterized in that said multiple state transition matrix is decomposed in a first matrix and a second matrix, the first matrix comprising at most  $N+W+1$  different expressions and the second matrix comprising at most  $N+W+1$  different expressions, wherein the elements of the second matrix are defined by:  $G_{ij} = \{1, \text{ if } i-j=W; g_{i+j-N+1}, \text{ if } (i+j) \geq N-1 \wedge (j \geq N-W); 0, \text{ otherwise,}$  and the elements of the first matrix are defined  $P_{ij} = \{1, \text{ if } i=j \wedge i < N-W; p_{i+j-2N+W+1}, \text{ if } i+j \geq 2N-W-1; 0, \text{ otherwise,}$  wherein  $p_0 = 1, p_i = \sum g_{n-i+j} p_j$  for  $0 < i < N$ , and  $g_0, g_1$  up to and including  $g_{N-1}$  represent the configuration symbols which are comprised in the state transition matrix (column 2, line 45-column 3, line 65 disclose the

state transition matrix decomposed into two matrices. Here, the state transition matrix of the shift register is broken into two matrices A and B that are used in the multiplication (column 3, lines 45-46) with state vector. Thus, the multiplication can be used in combination with the analogous teachings of Gu).

6. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Gu, by utilizing the state transition matrix techniques as taught by Hamatsu, for the benefit of implementing both simple construction type and modular construction type sequence generators used in a communication system which use shift registers (Gu, Hamatsu, column 1, lines 5-15 and 41-47).

7. **As to claims 2 and 7**, the combination of Gu and Hamatsu disclose wherein the expressions of the first matrix are evaluated during a configuration stage of the operation of the LFSR (Gu, column 5, lines 15-36).

8. **As to claim 5**, the combination of Gu and Hamatsu disclose that the multiplication means comprises a first set of logical units for performing the multiplication of the state vector by the second matrix and a second set of logical units for performing the multiplication of the state vector by the first matrix (Gu, column 5, lines 15-36 and different multiplication stages of figure 6).

9. **As to claim 6**, the combination of Gu and Hamatsu disclose that the LFSR comprises a third set of logical units for computing the first matrix (Gu, column 5, lines 15-36).
10. **As to claim 8**, the combination of Gu and Hamatsu disclose the second set of logical units is coupled to the first set of logical units via an intermediate data register (Gu, column 2, line 57-column 3, line 8).

#### ***Response to Arguments***

11. Applicant's arguments with respect to claims 1, 2, and 4-8 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL YAARY whose telephone number is (571)270-1249. The examiner can normally be reached on Monday-Friday, 8:00 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis Bullock can be reached on (571) 272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. Y./  
Examiner, Art Unit 2193

/Lewis A. Bullock, Jr./  
Supervisory Patent Examiner, Art Unit 2193